MITIGATION PRACTICES GUIDEBOOK

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

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APPROVED: MAY 7, 1987

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
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Frankenia grandifolia

INTRODUCTION

The San Francisco Bay Conservation and Development Commission regulates the placement of fill, the extraction of materials, and changes in use within the Bay and along the Bay shoreline under the authority of the McAteer-Petris Act (the Commission's enabling legislation), the Suisun Marsh Preservation Act, and the San Francisco Bay Plan. Since 1974, the Commission has required that Bay fill project permittees offset the unavoidable adverse environmental impacts of fill authorized to be placed in San Francisco Bay through a variety of mitigation techniques. This guidebook is intended to assist permit applicants and interested parties in determining when, how much, and what type of mitigation has been required by the Commission for projects involving fill in San Francisco Bay. Understanding when and how the Commission has used mitigation in the past should help the Commission and applicants identify similiar mitigation for a particular Bay fill project in the future.

The purpose of mitigation is to offset the specific adverse environmental impacts of a project. Because of the many variables in site conditions, project details, environmental impacts, availability of suitable mitigation, and other circumstances, it is impractical to establish precise standards for mitigation. For this reason, this guidebook does not attempt to reduce past mitigation experience to a formula for determining precisely how much and what kind of mitigation is necessary. Nor does the guidebook suggest changes to the Commission's mitigation policy or recommend that standards be established. The guidebook's presentation of what mitigation has been required in the past should, however, provide greater predictability to permit applicants and the public concerning the Commission's mitigation requirements and the likely mitigation approaches that would be successful in the future.

Mitigation is an evolving practice and concept. As more knowledge is gained concerning the impacts of various types of Bay fill and the effectiveness of various mitigation measures, the Commission may change its mitigation practices. Furthermore, some types of fill may have insignificant impacts on Bay resources at most locations, but may have significant adverse impacts if proposed in an area of sensitive resource values. For these reasons, the impact of each specific fill project, and the benefits of each mitigation proposal, must continue to be evaluated on a case by case basis. Therefore, early in their project planning, permit applicants should contact the Commission's staff to determine the information that will be needed to assess impacts of fill on Bay resources, the types of impacts that will have to be considered, and how best to assure that the project will provide public benefits that will outweigh the detriments of Bay fill. The Commission's Chief of Permits should be contacted to arrange for these discussions.

COMMISSION MITIGATION POLICY

"Mitigation" refers to any action taken to lessen any effect, but as used by the Commission, the term refers to any action taken to avoid, reduce, or offset the unavoidable adverse impacts from Bay fill that affect Bay natural resources, such as aquatic and wildlife habitat and water quality, circulation, surface area, and volume. Mitigation encompasses such diverse actions as limiting construction to certain times of the year to avoid interfering with spawning herring and migrating waterfowl, and converting dry land into tidal marsh. Mitigation must actually lessen the impacts of an approved Bay fill project.

The Commission relies on the following San Francisco Bay Plan policy to evaluate the need for and the amount of mitigation that should be provided as part of a Bay fill project:

> Mitigation for the unavoidable adverse environmental impacts of any Bay fill should be considered by the Commission in determining whether the public benefits of a fill project clearly exceed the public detriment from the loss of water areas due to the fill and whenever mitigation is necessary for the Commission to comply with the provisions of the California Environmental Quality Act. Whenever mitigation is needed, the mitigation program should be provided as part of the project. Mitigation should consist of measures to compensate for the adverse impacts of the fill to the natural resources of the Bay, such as to water surface, volume or circulation, fish and wildlife habitat or marshes or mudflats. Mitigation is not a substitute for meeting the other requirements of the McAteer-Petris Act concerning fill. When mitigation is necessary to offset the unavoidable adverse impacts of approvable fill, the mitigation program should assure:
>
> (1) That benefits from the mitigation would be commensurate with the adverse impacts on the resources of the Bay and consist of providing area and enhancement resulting in characteristics and values similar to the characteristics and values adversely affected;
>
> (2) That the mitigation would be at the fill project site, or if the Commission determines that on-site mitigation is not feasible, as close as possible;
>
> (3) That the mitigation measures would be carefully planned, reviewed, and approved by or on behalf of the Commission, and subject to reasonable controls to ensure success, permanence, and long-term maintenance;
>
> (4) That the mitigation would, to the extent possible, be provided concurrently with those parts of the project causing adverse impacts; and

(5) That the mitigation measures are coordinated with all affected local, state, and federal agencies having jurisdiction or mitigation expertise to ensure, to the maximum practicable extent, a single mitigation program that satisfies the policies of all the affected agencies.

If more than one mitigation program is proposed that satisfies all five factors above, the Commission should consider the cost of the alternatives in determining the appropriate program.

To encourage cost effective and comprehensive mitigation programs, the Commission should extend credit for certain fill removal and encourage land banking provided that any credit or land bank is recognized pursuant to written agreement executed by the Commission. In considering credit or land bank agreements, the Commission should assure that the five factors listed above will be met.

COMMISSION MITIGATION PRACTICES

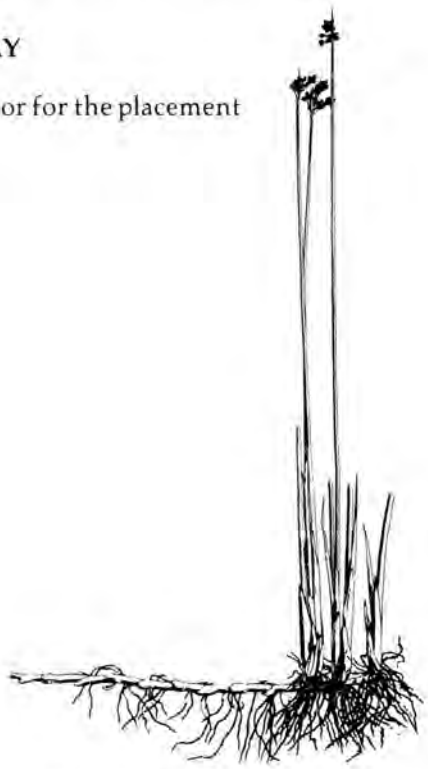
Based on an analysis of Commission permits issued between 1974 and early 1987, it is clear that the Commission has applied general mitigation practices with relative consistency for each type of project. These practices, which are described below, provide quick and easy guidance as to when, how much, and what kind of mitigation has been found appropriate for a particular type of project authorized by the Commission. Although these past practices provide valuable guidance, they cannot be used as inflexible standards because the impact of each Bay fill project, and the benefits the proposed mitigation, must be evaluated on a case by case basis.

SHORELINE WORK

To date, the Commission has generally not required mitigation for work within the Commission's shoreline band jurisdiction.

DREDGING AND DEPOSITION OF DREDGED MATERIAL IN THE BAY

To date, the Commission has generally not required mitigation for dredging or for the placement of dredged materials at designated in-Bay disposal sites.



Scirpus acutus

FLOATING FILL

Floating fill is designed to float at all or most tidal stages, and includes boat docks, historic ships, drydocks, floating breakwaters, vessels moored for extended periods, and pedestrian walkways on floats.

1. **Environmental Impacts.** Generally, floating fills can impact the Bay by:

   - *blocking sunlight,* thereby eliminating marsh plants and reducing photosynthesis.
   - *reducing wave energy,* which can increase the rate of siltation and affect tidal circulation and currents.
   - *reducing oxygen exchange* by decreasing the amount of Bay surface area available for such exchange.

2. **Typical Mitigation Requirements**

a. BOAT DOCKS. Mitigation has rarely been required for floating boat docks, whether proposed singly in conjunction with a single-family residence or in large numbers as part of a marina. The Commission has required mitigation for floating boat docks, however, when either construction or use of the dock(s) would adversely impact a sensitive or endangered wildlife resource, such as a harbor seal haul out ground or herring during spawning season. Mitigation in these instances has been to restrict construction and/or use of the dock(s) to times which avoid interference with wildlife use of the area.

b. VESSELS MOORED FOR EXTENDED PERIODS. The Commission has not required mitigation for the permanent or long-term mooring of nonrecreational vessels such as historic ships, houseboats, or barges. Though not requiring mitigation, the Commission has found that the long-term mooring of these large vessels would impact the benthic community if they rest on the Bay bottom at low tide, or increase sedimentation rates, and has therefore limited the term of some of these fills so that their environmental impacts can be monitored.

c. DRY DOCKS. Mitigation has been required for drydocks authorized by the Commission. The mitigation has taken the form of removing existing fill (deteriorated piers and pilings) at the project site. In addition, the Commission has limited the term of such permits to ten years or less.

Cotula coronopifolia

SUBMERGED FILL

Submerged fills are predominantly underwater and include the placement of dredged materials, storm water outfall pipes, pipelines, riprap, breakwaters, and public access facilities such as tidal stairs and boat launch ramps.

1. **Environmental Impacts.** The environmental impacts of submerged fill include:

   - *changes in substrate* which can significantly affect the kinds and number of benthic (bottom dwelling) organisms that live in an area.
   - *alteration of currents and circulation patterns* which can affect the rate of sedimentation (breakwaters).
   - *resuspension of sediments and pollutants* if dredging is involved (pipelines and outfalls).
   - *alteration of the natural processes of shoreline erosion and accretion* (riprap, bulkheads, and breakwaters).
   - *creation of underwater mounds* affecting water circulation, volume, and currents (placement of dredge spoils at in-Bay disposal sites).

2. **Typical Mitigation Requirements**

a. RIPRAP. The Commission has not required mitigation for riprap, though it typically conditions such permits to assure that fill placed for riprap creates a well-engineered, permanent, stable, and safe shoreline requiring little future maintenance. However, the placement of major solid earth fill for shoreline protection may require mitigation (see section on earth fill).

b. STORM DRAINS, PIPELINES, AND OUTFALL PIPES. Mitigation has rarely been required for the installation of storm drains, pipelines, and outfall pipes. However, when construction will impact existing marshes or mudflats, the Commission has typically required construction practices that minimize disturbance to the existing habitat and the restoration of the site to preproject conditions, including planting disturbed areas if they have not revegetated naturally within a year of project completion.

c. BREAKWATERS AND GROINS. The Commission has not required mitigation for breakwaters or groins. However, the placement of major solid fill for breakwaters or groins may require mitigation (see section on earth fill).

d. PUBLIC ACCESS. Mitigation has not been required for submerged fills authorized by the Commission to improve public access, such as tidal stairs, boat launching ramps, or beach replenishment projects.

e. DREDGING. Mitigation has generally not been required for the deposit of dredged materials at U.S. Army Corps of Engineers designated disposal sites in the Bay.

PILE-SUPPORTED FILL

Pile-supported fills are structures supported above water by pilings. Under the Commission's law, the McAteer-Petris Act, both the pilings and the structure supported over water by pilings are defined as "fill." The Commission has approved pile-supported fill for marine terminals, boat docks, bridges, public access boardwalks, and buildings which extend partially over the Bay.

1. **Environmental Impacts.** Generally, the adverse environmental impacts of pile-supported fill are similar to those of floating fill, including:

- disruption and *displacement of existing benthic communities.*
- pile-supported fill *creates shade,* which can affect water and soil temperature and influence an area's plant and animal communities.
- pilings dampen wave energy and create eddies which can alter water circulation and can *increase the rate of sedimentation.*
- pile-supported fill can *disrupt animal use* of an area and animal movement between areas.

2. **Typical Mitigation Requirements**

a. PUBLIC ACCESS. Mitigation has generally not been required for small (less than 2,500 square feet) pile-supported public access facilities such as boardwalks, fishing piers, and observation decks. In a few permits authorizing pile-supported public access fill, however, the Commission found that project construction would result in increased human and pet disturbance of neighboring marshes. Such impacts have been mitigated by excavating channels to form a water barrier between public access areas and the neighboring marsh to reduce the likelihood of such intrusions.

Large pile-supported public access fills (7,000 square feet or more) have all involved removal of substantial amounts of existing Bay fill so that each project resulted in a net increase in Bay surface area.

b. BOAT DOCKS. Mitigation has not been required for pile-supported structures associated with recreational boat docks. However, such fills have generally been small (less than 9,000 square feet) and have often involved removal of existing pile-supported fill to make room for the newly authorized pile-supported facility, a public benefit recognized by the Commission.

c. BUILDINGS. Mitigation has typically been required for all but the smallest pile-supported buildings. Generally, mitigation for such fills has involved the on-site removal of existing, pile-supported Bay fill of equal or greater size than the proposed fill. When on-site fill removal has been infeasible, the Commission has required applicants to create a tidal marsh equal or greater in size to the proposed pile-supported fill. The only instances where the Commission has not required mitigation for pile-supported buildings have been when the proposed fill is small (less than 1,000 square feet), with insignificant adverse environmental impacts, and suitable mitigation was not readily available.

d. BRIDGES. Nearly all Commission permits for pile-supported bridges have provided mitigation, including:

- Enhancing habitat values in existing degraded tidal marshes by excavating channels and improving tidal circulation. Such enhancement projects always involve improvements to significantly larger areas than that covered by the pile-supported bridge.

- Contributing funds on a pro-rata basis to a mitigation bank where the amount of the contribution is directly related to the cost of acquiring, restoring, monitoring, and maintaining an area as tidal wetland habitat.

- Excavating an adjoining upland to create a tidal marsh equal or greater in size to the area of the Bay covered by the proposed bridge.

e. MARINE TERMINALS, WHARVES, AND WATER-RELATED INDUSTRY. Mitigation has been required for nearly every project involving the construction of pile-supported fill for marine terminals and water-related industrial wharves. Mitigation for such projects has generally resulted in the uncovering or the restoration of tidal action to an area as large or larger than the proposed fill. Approved mitigation has taken various forms, including:

- Removal of existing pile-supported fill at or near the project site.

- Performing extensive cleanup of shoreline debris.

- Removal of earth fill to create a new tidal marsh.

- Contributing funds to a mitigation bank equivalent to the cost of acquiring, restoring, monitoring, and maintaining an area equivalent to the proposed fill.

- Enhancing habitat values in existing degraded tidal marshes through grading, channel excavation, etc.

Salicornia pacifica

EARTH FILL

Earth fills are solid fills placed in tidal areas to create dry land. The Commission has approved earth fill for marine terminals, water-related industry, marinas, exploratory natural gas wells, levees, bridges and bridge approaches, and public access.

1. **Environmental Impacts.** Of the various kinds of fill, earth fills have the most dramatic impact on the Bay. Earth fill transforms an existing tidal area to upland. Such fills can potentially have serious impacts on the Bay, including:

- *destruction of fish and wildlife habitat.*
- *disruption of the ecological balance* of the Bay.
- *reduction of the Bay's surface area and volume* thus decreasing the Bay's ability to maintain adequate oxygen levels in its water, reducing the amount of water available to assimilate wastes, and reducing the tidal prism that flushes wastes from the Bay.
- *reduction in the climate-moderating effects* of the Bay thereby increasing the possibility of air pollution.

2. **Typical Mitigation Requirements.** Nearly all earth fill projects approved by the Commission have been required to offset the impacts of such fill either through mitigation or through a project design that negates the adverse impacts of the fill on Bay resources. In nearly all cases, implementation of the mitigation measures has assured that the project resulted in creating Bay natural resource values and areas equal to or greater than the values lost from the filling. Mitigation approved for solid fills has included:

- Excavating existing uplands at the project site to create a new tidal marsh with suitable topography and hydrology to promote a diversity of salt marsh vegetation and wildlife habitats.
- Performing extensive cleanup of shoreline debris.
- Removal of existing deteriorated pile-supported, floating, and submerged fill.
- Contributing funds on a pro-rata basis to a mitigation bank or towards the acquisition and tidal restoration of an off-site parcel.
- Where earth fill has been proposed to support a temporary use (such as drilling exploratory natural gas wells), the Commission has typically required removal of all fill material after completing the drilling, and reseeding with appropriate native plant species if the disturbed area has not naturally revegetated within one growing season.

In only a few instances has mitigation not been required for solid fill:

- When the fill was small (less than 1,000 square feet), with insignificant adverse environmental impacts, and suitable mitigation was not available.
- When the proposed fill site has previously been filled to an elevation above the line of highest tidal action, has vegetation and soils characteristic of uplands, but has subsequently subsided so that it is occasionally inundated by tidal waters.

APPENDIX A
ORGANIZATIONS AND AGENCIES INVOLVED WITH MITIGATION IN SAN FRANCISCO BAY

REGULATORY AGENCIES

San Francisco Bay Conservation and Development Commission
Thirty Van Ness Avenue, Room 2011
San Francisco, California 94102
(415) 557-3686

San Francisco Bay Regional Water Quality Control Board
1111 Jackson Street, Room 6040
Oakland, California 94612

U. S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, California 94105
(415) 974-0416

REVIEWING AGENCIES

California Department of Fish and Game
Region III
P. O. Box 47
Yountville, California 94599
(707) 944-2011

U. S. Environmental Protection Agency
Region IX
215 Fremont Street
San Francisco, California 94105
(415) 974-8071

U. S. Fish and Wildlife Service
2800 Cottage Way
Sacramento, California 95825
(916) 484-4731

California Department of Fish and Game
Marine Patrol Branch Office
411 Burgess Drive
Menlo Park, California 94025
(415) 326-0324

U. S. National Marine Fisheries
Tiburon Laboratory
3150 Paradise Drive
Tiburon, California 94920
(415) 556-0565

INTEREST GROUPS

Bay Planning Coalition
666 Howard Street, Suite 301
San Francisco, California 94108
(415) 543-3830

Golden Gate Audubon Society
1550 Shattuck Avenue #204
Berkeley, Calfiornia 94709
(415) 843-2211

Save San Francisco Bay Association
2140 Shattuck Avenue
Berkeley, California
(415) 849-3053

San Francisco Bay Chapter
Sierra Club
6014 College Avenue
Oakland, California 94618
(415) 658-7470

Audubon Society
Sequoia Chapter
720 El Camino Real
Belmont, California 94002
(415) 593-7368

Santa Clara Valley Audubon Society
415 Cambridge Avenue, Suite 21
Palo Alto, California 94306
(415) 329-1811

Marin Audubon Society
Post Office Box 599
Mill Valley, CA 94942
(415) 924-6057

National Audubon Society
376 Green Beach Road
Tiburon, California 94920
(415) 388-2524

ORGANIZATIONS INVOLVED IN PURCHASE AND ENHANCEMENT OF MITIGATION SITES

State Coastal Conservancy
1330 Broadway, Suite 1100
Oakland, California 94612
(415) 464-1015

Marin Open Space District
Civic Center
San Rafael, California 94903
(415) 499-6387

Midpeninsula Open Space District
Old Mill Office Center
Building C, Suite 135
201 San Antonio Circle
Mountain View, California 94040
(415) 949-5500

Sonoma Land Trust
P. O. Box 1211
Sonoma, California
(707) 938-9119

East Bay Regional Park District
11500 Skyline Boulevard
Oakland, California 94619
(415) 531-9300

Peninsula Open Space Trust
3000 Sand Hill Road
Menlo Park, California 94025
(415) 854-7696

Nature Conservancy
California Field Office
785 Market Street
San Francisco, California 94103
(415) 777-0487

Trust for Public Lands
82 Second Street
San Francisco, California 94105
(415) 495-4014

APPENDIX B
FEDERAL GUIDANCE

As a condition of approving the incorporation of the Bay Plan mitigation policy into the Commission's federal coastal management program for the San Francisco Bay segment of the California coastal zone in May, 1986, the federal Office of Ocean and Coastal Resource Management (OCRM) provided the following statement which expresses OCRM's understanding of how the mitigation policy will be applied. This statement was not adopted by the Commission.

1. In accordance with Section 66605(a) of the McAteer-Petris Act (Act) a proposed fill project for San Francisco Bay must be "water-oriented" before it will be approved by the Commission.

2. Once a fill project is deemed to be "water-oriented" Section 66605(a) of the Act further requires the Commission to authorize fill only when the public benefits from the fill clearly exceed the public detriment from the loss of water areas.

3. To determine the extent of public detriment (i.e., actual loss of water area), the Commission will look to the outcome of the environmental impact analysis established under the California Environmental Quality Act (CEQA) or the National Environmental Policy Act (NEPA). CEQA will be used for projects which are entirely state, local, or private and do not require any federal permits. NEPA will be used for projects which are undertaken by a federal agency or that require federal permits.

4. If the appropriate environmental impact analysis identifies an adverse impact in the form of lost water area, the Commission will use this analysis as the basis for considering whether mitigation is needed for a particular project to offset the adverse impact.

5. The Commission will balance the public detriment of a proposed fill project, as determined under CEQA or NEPA, against the public benefits to be derived from the project. In reference to this balancing process, the McAteer-Petris Act requires the Commission to focus on environmental rather than economic or social factors in determining the public benefits of a project. However, the Commission is not limited to direct environmental benefits in its weighing of the benefits of fill projects. For instance, the potential loss of a small amount of water area from a particular project may be outweighed by the overwhelming public benefits to be derived from the project. Thus, mitigation would not be needed for the project. On the other hand, the public benefits of a particular project may not completely offset the public detriment of the project in which case some mitigation may be needed.

6. When the Commission determines that mitigation is needed, a mitigation program should be provided as part of the project. In accordance with Section 66605(a) of the Act, mitigation should consist of measures to compensate for the adverse impacts of the fill to the natural resources of the Bay as identified under CEQA or NEPA such as to water surface, volume or circulation, fish and wildlife habitat, or marshes or mudflats.

7. It should be noted that mitigation is not a mandatory requirement of all proposed fill projects.

Distichlis spicata

This publication was prepared with financial assistance from the U.S. Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, under the provisions of the federal Coastal Zone Management Act of 1972, as amended.

Illustrations from *A Flora of the Marshes of California,* by Herbert L. Mason, published by University of California Press.